

WHAT IS CLAIMED IS:

- Sub a1 5
1. A method for the treatment or prevention of Hodgkin's Disease in a subject comprising administering to the subject, in an amount effective for said treatment or prevention, (a) an antibody that (i) immunospecifically binds CD30 and (ii) exerts a cytostatic or cytotoxic effect on a Hodgkin's Disease cell line; and (b) a pharmaceutically acceptable carrier.
 2. The method of claim 1, wherein the antibody is human, humanized or
10 chimeric.
 3. The method of claim 1, further comprising administering chemotherapy to said subject.
 - 15 4. The method of claim 1, wherein the antibody is conjugated to a cytotoxic agent.
 5. The method of claim 1, wherein the antibody is a fusion protein comprising the amino acid sequence of a second protein that is not an antibody.
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 6. The method of claim 4 or 5, further comprising administering chemotherapy to said subject.
 7. The method of claim 1, wherein the cytostatic or cytotoxic effect is
25 determined by:
 - (a) contacting a culture of the Hodgkin's Disease cell line with the antibody, said culture being of about 5,000 cells in a culture area of about 0.33 cm², said contacting being for a period of 72 hours;
 - (b) exposing the culture to 0.5 μ Ci of ³H-thymidine during the final 8
30 hours of said 72-hour period; and
 - (c) measuring the incorporation of ³H-thymidine into cells of the culture, wherein the antibody has a cytostatic or cytotoxic effect on the Hodgkin's Disease cell line if the cells of the culture have reduced ³H-thymidine incorporation compared to cells of the same Hodgkin's Disease cell line cultured under the same conditions but not
35 contacted with the antibody.
- Sub a2

8. A method for the treatment or prevention of Hodgkin's Disease in a subject comprising administering to the subject an amount of a protein, which protein (a) competes for binding to CD30 with monoclonal antibody AC10 or HeFi-1, and (b) exerts a cytostatic or cytotoxic effect on a Hodgkin's Disease cell line, which amount is effective for the treatment or prevention of Hodgkin's Disease.

9. A method for the treatment or prevention of Hodgkin's Disease in a subject comprising administering to the subject an amount of a protein, which protein (a) comprises SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:14 or SEQ ID NO:16, and (b) immunospecifically binds CD30, which amount is effective for the treatment or prevention of Hodgkin's Disease.

10. A method for the treatment or prevention of Hodgkin's Disease in a subject comprising administering to the subject an amount of a protein, which protein (a) comprises SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:30 or SEQ ID NO:32, and (b) immunospecifically binds CD30, which amount is effective for the treatment or prevention of Hodgkin's Disease.

11. A method for the treatment or prevention of Hodgkin's Disease in a subject comprising administering to the subject an amount of a protein, which protein (a) comprises an amino acid sequence that has at least 95% identity to SEQ ID NO:2 or SEQ ID NO:10, and (b) immunospecifically binds CD30, which amount is effective for the treatment or prevention of Hodgkin's Disease.

12. A method for the treatment or prevention of Hodgkin's Disease in a subject comprising administering to the subject an amount of a protein, which protein (a) comprises an amino acid sequence that has at least 95% identity to SEQ ID NO:18 or SEQ ID NO:26, and (b) immunospecifically binds CD30, which amount is effective for the treatment or prevention of Hodgkin's Disease.

13. The method of any one of claims 8-12, wherein the protein is a human, humanized or chimeric antibody.

14. The method of any one of claims 8-12, further comprising administering chemotherapy to said subject.

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15. The method of any one of claims 8-12, wherein the protein is conjugated to a cytotoxic agent.

16. The method of any one of claims 8-12, wherein the protein is a fusion
5 protein comprising the amino acid sequence of a second protein.

17. The method of claim 15, further comprising administering chemotherapy to the subject.

10 18. The method of claim 16, further comprising administering chemotherapy to the subject.

19. The method of any one of claims 8-12, wherein the cytostatic or cytotoxic effect is determined by:

15 (a) contacting a culture of the Hodgkin's Disease cell line with the protein, said culture being of about 5,000 cells in a culture area of about 0.33 cm², said contacting being for a period of 72 hours;

(b) exposing the culture to 0.5 μ Ci of ³H-thymidine during the final 8 hours of said 72-hour period; and

20 (c) measuring the incorporation of ³H-thymidine into cells of the culture, wherein the protein has a cytostatic or cytotoxic effect on the Hodgkin's Disease cell line if the cells of the culture have reduced ³H-thymidine incorporation compared to cells of the same Hodgkin's Disease cell line cultured under the same conditions but not contacted with the protein.

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20. A pharmaceutical composition comprising:

(a) an antibody that (i) immunospecifically binds CD30, (ii) exerts a cytostatic or cytotoxic effect on a Hodgkin's Disease cell line, and (iii) is not monoclonal antibody AC10 or HeFi-1 and does not result from cleavage of AC10 or HeFi-1 with papain
30 or pepsin, in an amount effective for the treatment or prevention of Hodgkin's Disease; and
(b) a pharmaceutically acceptable carrier.

21. The method of claim 20, wherein the antibody is human, humanized or chimeric.

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22. The method of claim 20, wherein the antibody is conjugated to a cytotoxic

agent.

23. The method of claim 20, wherein the antibody is a fusion protein comprising the amino acid sequence of a second protein that is not an antibody.

24. The method of claim 20, wherein the cytostatic or cytotoxic effect is determined by:

- (a) contacting a culture of the Hodgkin's Disease cell line with the antibody, said culture being of about 5,000 cells in a culture area of about 0.33 cm², said contacting being for a period of 72 hours;
- (b) exposing the culture to 0.5 μ Ci of ³H-thymidine during the final 8 hours of said 72-hour period; and
- (c) measuring the incorporation of ³H-thymidine into cells of the culture, wherein the antibody has a cytostatic or cytotoxic effect on the Hodgkin's Disease cell line if the cells of the culture have reduced ³H-thymidine incorporation compared to cells of the same Hodgkin's Disease cell line cultured under the same conditions but not contacted with the antibody.

25. A pharmaceutical composition comprising:

- (a) a protein, which protein (i) competes for binding to CD30 with monoclonal antibody AC10 or HeFi-1, (ii) exerts a cytostatic or cytotoxic effect on a Hodgkin's Disease cell line, and (iii) is not monoclonal antibody AC10 or HeFi-1 and does not result from cleavage of AC10 or HeFi-1 with papain or pepsin, in an amount effective for the treatment or prevention of Hodgkin's Disease; and
- (b) a pharmaceutically acceptable carrier.

26. A pharmaceutical composition comprising:

- (a) a protein comprising SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:14 or SEQ ID NO:16, which protein (i) immunospecifically binds CD30, and (ii) is not monoclonal antibody AC10 and does not result from cleavage of AC10 with papain or pepsin, in an amount effective for the treatment or prevention of Hodgkin's Disease; and
- (b) a pharmaceutically acceptable carrier.

27. A pharmaceutical composition comprising:

- (a) a protein comprising SEQ ID NO:20, SEQ ID NO:22, SEQ ID

NO:24, SEQ ID NO:28, SEQ ID NO:30 or SEQ ID NO:32, which protein (i) immunospecifically binds CD30, and (ii) is not monoclonal antibody HeFi-1 and does not result from cleavage of HeFi-1 with papain or pepsin, in an amount effective for the treatment or prevention of Hodgkin's Disease; and

- 5 (b) a pharmaceutically acceptable carrier.

28. A pharmaceutical composition comprising:

- (a) a protein comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:2 or SEQ ID NO:10, which protein (i) immunospecifically binds CD30; and (ii) is not monoclonal antibody AC10 and does not result from cleavage of AC10 with papain or pepsin, in an amount effective for the treatment or prevention of Hodgkin's Disease; and

- (b) a pharmaceutically acceptable carrier.

15 29. A pharmaceutical composition comprising:

- (a) a protein comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:18 or SEQ ID NO:26, which protein (i) immunospecifically binds CD30; and (ii) is not monoclonal antibody HeFi-1 and does not result from cleavage of HeFi-1 with papain or pepsin, in an amount effective for the treatment or prevention of Hodgkin's Disease; and

- (b) a pharmaceutically acceptable carrier.

25 30. The method of any one of claims 25-29, wherein the protein is a human, humanized or chimeric antibody.

31. The pharmaceutical composition of any one of claims 25-29, in which the protein is conjugated to a cytotoxic agent.

30 32. The pharmaceutical composition of any one of claims 25-29, in which the protein is a fusion protein comprising the amino acid sequence of a second protein that is not an antibody.

33. The pharmaceutical composition of any one of claims 25-29, wherein the cytostatic or cytotoxic effect is determined by:

- 35 (a) contacting a culture of the Hodgkin's Disease cell line with the protein, said culture being of about 5,000 cells in a culture area of about 0.33 cm², said

contacting being for a period of 72 hours;

(b) exposing the culture to 0.5 μ Ci of 3 H-thymidine during the final 8 hours of said 72-hour period; and

5 (c) measuring the incorporation of 3 H-thymidine into cells of the culture, wherein the protein has a cytostatic or cytotoxic effect on the Hodgkin's Disease cell line if the cells of the culture have reduced 3 H-thymidine incorporation compared to cells of the same Hodgkin's Disease cell line cultured under the same conditions but not contacted with the protein.

10 34. An isolated nucleic acid comprising a nucleotide sequence encoding a protein, which protein (a) competes for binding to CD30 with monoclonal antibody AC10 or HeFi-1, and (b) exerts a cytostatic or cytotoxic effect on a Hodgkin's Disease cell.

35. The isolated nucleic acid of claim 34, wherein the cytostatic or cytotoxic
15 effect is determined by:

(a) contacting a culture of the Hodgkin's Disease cell line with the protein, said culture being of about 5,000 cells in a culture area of about 0.33 cm^2 , said contacting being for a period of 72 hours;

(b) exposing the culture to 0.5 μ Ci of 3 H-thymidine during the final 8
20 hours of said 72-hour period; and

(c) measuring the incorporation of 3 H-thymidine into cells of the culture, wherein the protein has a cytostatic or cytotoxic effect on the Hodgkin's Disease cell line if the cells of the culture have reduced 3 H-thymidine incorporation compared to cells of the same Hodgkin's Disease cell line cultured under the same conditions but not contacted
25 with the protein.

36. The isolated nucleic acid of claim 35, wherein the protein is not immobilized.

30 37. The isolated nucleic acid of claim 35, wherein the Hodgkin's Disease cell line is L428, L450, HDLM2 or KM-H2.

38. An isolated nucleic acid comprising one but not both of SEQ ID NO:1 and SEQ ID NO:17, one but not both of SEQ ID NO:3 and SEQ ID NO:19, one but not both of
35 SEQ ID NO:5 and SEQ ID NO:21, one but not both of SEQ ID NO:7 and SEQ ID NO:23, one but not both of SEQ ID NO:9 and SEQ ID NO:25, one but not both of SEQ ID NO:11

and SEQ ID NO:27, one but not both of SEQ ID NO:13 and SEQ ID NO:29, or one but not both of SEQ ID NO:15 and SEQ ID NO:31.

39. An isolated nucleic acid comprising SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29 or SEQ ID NO:31.

40. An isolated nucleic acid comprising a nucleotide sequence encoding a protein which comprises one but not both of SEQ ID NO:2 and SEQ ID NO:18, one but not both of SEQ ID NO:4 and SEQ ID NO:20, one but not both of SEQ ID NO:6 and SEQ ID NO:22, one but not both of SEQ ID NO:8 and SEQ ID NO:24, one but not both of SEQ ID NO:10 and SEQ ID NO:26, one but not both of SEQ ID NO:12 and SEQ ID NO:28, one but not both of SEQ ID NO:14 and SEQ ID NO:30, or one but not both of SEQ ID NO:16 and SEQ ID NO:32.

41. An isolated nucleic acid comprising a nucleotide sequence encoding a protein which comprises SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30 or SEQ ID NO:32.

42. The isolated nucleic acid of claim 40 or 41, wherein the protein is an antibody.

43. The isolated nucleic acid of claim 42 comprising a nucleotide sequence encoding an antibody comprising (a) a variable domain of monoclonal antibody AC10, and (b) a human constant region.

44. The isolated nucleic acid of claim 42 comprising a nucleotide sequence encoding a protein comprising (a) the complementarity determining regions of a variable domain of monoclonal antibody AC10, and (b) human framework regions.

45. The isolated nucleic acid of claim 42 comprising a nucleotide sequence encoding an antibody comprising (a) a variable domain of monoclonal antibody HeFi-1, and (b) a human constant region.

46. The isolated nucleic acid of claim 42 comprising a nucleotide sequence encoding a protein comprising (a) the complementarity determining regions of a variable domain of monoclonal antibody HeFi-1, and (b) human framework regions.
- 5 47. An isolated nucleic acid comprising a nucleotide sequence encoding a protein comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:2 or SEQ ID NO:10.
- 10 48. An isolated nucleic acid comprising a nucleotide sequence encoding a protein comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:18 or SEQ ID NO:26.
- 15 49. An isolated nucleic acid which hybridizes to the reverse complement of a DNA consisting of a coding DNA sequence encoding a protein consisting of an amino acid sequence selected from the group consisting of SEQ ID NO:2 and SEQ ID NO:10, under highly stringent conditions, which isolated nucleic acid encodes a protein that immunospecifically binds CD30.
- 20 50. An isolated nucleic acid which hybridizes to the reverse complement of a DNA consisting of a coding DNA sequence encoding a protein consisting of an amino acid sequence selected from the group consisting of SEQ ID NO:18 and SEQ ID NO:26, under highly stringent conditions, which isolated nucleic acid encodes a protein that competes for binding to CD30 with monoclonal antibody AC10 or HeFi-1 and exerts a cytostatic or
25 cytotoxic effect on a Hodgkin's Disease cell line.
51. A recombinant cell containing a recombinant nucleic acid vector comprising a nucleotide sequence encoding a protein, which protein competes for binding to CD30 with monoclonal antibody AC10 or HeFi-1 and exerts a cytostatic or cytotoxic effect on a
30 Hodgkin's Disease cell line.
52. A recombinant cell containing a recombinant nucleic acid vector comprising SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21,
35 SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29 or SEQ ID NO:31.